

1/2 019 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--OXIDATION OF HIGHLY CONCENTRATED SULFUR DIOXIDE USING TECHNICAL
GRADE OXYGEN IN A CONTACT UNIT WITH FLUIDIZED CATALYST BEDS -U-
AUTHOR--MAYDUROVA, O.V., MALKIMAN, V.I., KONDRATYEVA, G.P., KRAVCHENDO,
E.A.

COUNTRY OF INFO--USSR

SOURCE--KHIM. PROM. (MOSCOW) 1970, 46(1) 24-7

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--FLUIDIZED BED CATALYST, WEAR RESISTANCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1986/0012

STEP NO--UR/0064/70/046/001/0024/0027

CIRC ACCESSION NO--AP0102112

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0102112

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A GASEOUS MIXT. CONTG. 56.5 VOL. PERCENT SO SUB2 AND 42.6 VOL. PERCENT O SUB2 WAS PASSED (AT A FLOW RATE OF 1600 VOL. PER HR) THROUGH A CATALYTIC REACTOR WITH 3 FLUIDIZED BEDS OF A WEAR-RESISTANT CATALYST; THE TEMPS. OF THE FIRST, SECOND, AND THIRD BEDS WERE 600, 550, AND 500 DEGREES, RESP., AND THE PRESSURE WAS 1 ATM. THE DEGREE OF OXIDN. OF THE SO SUB2 AFTER THE THIRD BED WAS 93.1 PERCENT. EXPTS. IN A PILOT PLANT REACTOR CONFIRMED THAT STABLE OPERATION MAY BE ACHIEVED WITHOUT PREHEATING THE GAS; A FLOW SHEET FOR A LARGE SCALE OXIDN. PLANT IS PROPOSED.

UNCLASSIFIED

MALKIN, A. YA.

Physical +
MATHEMATICAL
Science

CONTEMPORARY DIRECTIONS OF RHEOLOGY

(Syllabus in French)

[illegible]

11 NOV 77

The main part of the 1978 Symposium was devoted to the study of the effects of the 1977-78 drought on the growth and development of the wheat crop in the USSR. The main results of the work of the 1978 Symposium are presented in the book "The 1978 Symposium on the Effects of the 1977-78 Drought on the Growth and Development of the Wheat Crop in the USSR". The book is divided into two parts. The first part contains the results of the work of the 1978 Symposium on the Effects of the 1977-78 Drought on the Growth and Development of the Wheat Crop in the USSR. The second part contains the results of the work of the 1978 Symposium on the Effects of the 1977-78 Drought on the Growth and Development of the Wheat Crop in the USSR.

Based on the theory of polymers being associated in the form of micelles, the theory of the formation of the following three-dimensional network of polymers is described. The theory is based on the formation of micelles (especially of polymers and monomers of polymers) with polymeric compounds. The contribution of micelles to models (formation of a net) of nonlinear viscous and viscoelastic media, the location of barrier-layer polymers, and the location of micelles in the formation of a network of polymers for the production of polymers.

It is the purpose of this document to provide information on the results of the investigation of the activities of the Soviet Union in the field of international terrorism. The information is being provided to the public in order to inform them of the results of the investigation and to provide them with the information they need to make their own decisions on the issue. The information is being provided to the public in order to inform them of the results of the investigation and to provide them with the information they need to make their own decisions on the issue.

1/2 046 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--HIGH ELASTIC DEFORMATION OF POLYMERS IN THE VISCOUS STATE -U-

AUTHOR--(04)-VINOGRADOV, G.V., MALKIN, A.YA., LEONOV, A.I., SHUMSKIY, V.F.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(5), 1044-50

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--ELASTIC DEFORMATION, BUTYL RUBBER, POLYISOBUTYLENE, VISCOUS
FLOW, VISCOELASTICITY, ENTROPY, POLYMER RHEOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3007/0730

STEP NO--UR/0459/70/012/005/1044/1050

CIRC ACCESSION NO--AP0136169

UNCLASSIFIED

2/2 046

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136169
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE HIGHLY ELASTIC DEFORMATIONS OF
FLUID BUTYL RUBBER (I) AND POLYISOBUTYLENE (II) WERE STUDIED AS A
FUNCTION OF TEMP. THE CHANGES IN INTERNAL ENERGY AND ENTROPY OCCURRING
DURING A TRANSITION FROM A STATE OF REST TO A STATE OF VISCOUS FLOW AT
VARIOUS TEMPS. AND THE SHEAR RATES MAY BE EVALUATED BY CONSIDERING THE
VISCOELASTIC FLOW OF POLYMERS AS HAVING DEFINITE THERMODYNAMIC AND
RHEOL. PARAMETERS. THE HIGHLY ELASTIC DEFORMATIONS OF FLUID I AND II
WERE DISCUSSED. FACILITY: INST. NEFTEKHIM. SHIN. IM. TOPCHIEVA,
MOSCOW, USSR.

UNCLASSIFIED

1/2 033 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--HIGH ELASTICITY, NORMAL AND SHEAR STRESSES ON SHEAR DEFORMATION OF
LOW MOLECULAR WEIGHT POLYISOBUTYLENE -U-
AUTHOR-(03)-VINOGRADOV, G.V., MALKIN, A.YA., SHUMSKIY, V.F.

COUNTRY OF INFO--USSR

SOURCE--RHEOL. ACTA 1970, 9(2), 155-63

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ELASTICITY, SHEAR STRESS, ELASTIC DEFORMATION, POLYISOBUTYLENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1642

STEP NO--GY/0000/70/009/002/0155/0163

CIRC ACCESSION NO--AP0125264

UNCLASSIFIED

2/2 033

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0125264

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HIGH ELASTIC DEFORMATIONS AND NORMAL AND SHEAR STRESSES WHICH DEVELOP DURING SHEAR FLOW OF LOW MOL. WT. POLYISOBUTYLENE VISCOELASTIC LIQ. WERE DETD. AT 20-100DEGREES, 10 PRIME3-10 PRIME2 SEC PRIME NEGATIVE1 SHEAR RATE INTERVAL, AND 10 PRIME3 TO 10 PRIME6 DYNES-CM PRIME2 STRESS INTERVAL. THE ONLY CRITERION FOR ATTAINMENT OF STEADY STATE FLOW CONDITION IS CONSTANCY OF NORMAL STRESSES; ELASTIC DEFORMATION AT TRANSIENT DEFORMATION REGIMES IS NOT PREDICTED BY KNOW THEORIES. NORMAL STRESSES ARE PROPORTIONAL TO THE SQUARE OF THE SHEAR STRESSES IN BOTH LINEAR AND NONLINEAR REGIONS OVER A WIDE RANGE OF SHEAR RATES. THE EFFECTS OF TEMP. ON THE NEWTONIAN VISCOSITY, COEFF. OF NORMAL STRESSES, AND HIGHLY ELASTIC DEFORMATIONS ARE DISCUSSED.

FACILITY: INST. PETROCHEM. SYN., MOSCOW, USSR.

UNCLASSIFIED

1/2 032 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--TRANSITIONS IN POLYBUTADIENES -U-
AUTHOR-(04)-KULICHIKHIN, V.G., DZYURA, YE.A., MALKIN, A.YA., VINOGRADOV,
G.V.
COUNTRY OF INFO--USSR
SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(3), 568-73
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, CHEMISTRY
TOPIC TAGS--POLYBUTADIENE, TRANSITION TEMPERATURE, MELTING POINT,
CATALYTIC POLYMERIZATION, COMPLEX COMPOUND, THERMOMECHANICAL PROPERTY,
DIELECTRIC PROPERTY, ISOMER, SYNTHETIC RUBBER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1995/1209 STEP NO--UR/0459/70/012/003/0568/0573
CIRC ACCESSION NO--AP0116674
UNCLASSIFIED

2/2 032

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0116674

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE GLASS TRANSITION TEMP. (T_{SG}) AND M.P. OF STEREOREGULAR 1,4,POLYBUTADIENE RUBBERS (I) (PREP. BY POLMN. IN THE PRESENCE OF COMPLEX CATALYSTS CONTG. TI-SALTS AND HAVING VARIABLE AMTS. OF 1,4,CIS AND 1,4,TRANS ISOMERS) WERE STUDIED BY THERMOMECH., DIELEC., AND MECH. METHODS. THE M.P. OF I DECLINED WHEN EITHER CIS OR TRANS HOMOPOLYMER WAS INTRODUCED INTO THE POLYMER CHAIN. I FAILED TO CRYSTALLIZE WHEN 30-70PERCENT OF EITHER ISOMER WAS PRESENT. THE T_{SG} STEADILY INCREASED WITH INCREASED CONTENT OF 1,4,TRANS UNITS. EXTRAPOLATION OF THE CURVE PLOTTED FOR T_{SG} VS. CONTENT OF 1,4,TRANS UNITS GAVE THE T_{SG} OF THE CIS AND TRANS ISOMERS AS NEGATIVE 100 AND NEGATIVE 75DEGREES, RESP. FACILITY: INST. NEFTEKHIM. SIN. IM. TOPCHIEVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--02JCT70
TITLE--MICROSTRUCTURE AND RHEOLOGICAL PROPERTIES OF POLYBUTADIENES -U-
AUTHOR--(03)-VINUGRADOV, G.V., MALKIN, A.YA., KULICHIKHIN, V.G.
COUNTRY OF INFO--USSR
SOURCE--J. POLYM. SCI., PART A-2 1970, 8(3), 333-53
DATE PUBLISHED-----70
SUBJECT AREAS--NAVIGATION, MATERIALS
TOPIC TAGS--RHEOLOGIC PROPERTY, MOLECULAR STRUCTURE, VISCOSITY,
POLYBUTADIENE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1993/0216 STEP NO--US/0000/TG/008/003/0333/0353
CIRC ACCESSION NO--AP0113155
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0113155

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE VISCOSITIES, RUBBERY DEFORMATIONS, DENSITIES, AND THEIR DEPENDENCE ON TEMP. WERE MEASURED FOR SEVERAL SERIES OF POLYBUTADIENES WITH MOL. WTS. RANGING FROM 5000 TO 400,000 AND DIFFERING IN PROPORTIONS OF CIS AND TRANS STRUCTURES (CIS CONTENT FROM 40 TO 95PERCENT). ON THE BASIS OF THE VISCOSITY MEASUREMENTS THE CRITICAL MOL. WT. M_{SUBC} WAS DETD., CORRESPONDING TO A SHARP CHANGE IN THE NATURE OF THE VISCOSITY VS. MOL. WT. DEPENDENCE. RUBBERY DEFORMATIONS ARE DISPLAYED PRONOUNCEDLY IN SPECIMENS WITH M LARGER THAN M_{SUBC} AND ARE CLOSELY RELATED TO THE APPEARANCE OF NON NEWTONIAN FLOW. THE VALUE OF M_{SUBC} DEPENDS ON THE RELATIVE CONTENT OF CIS AND TRANS FORMS. WHEN M LARGER THAN M_{SUBC} , THE INITIAL VISCOSITY IS A PARAMETER SENSITIVE TO THE MICROSTRUCTURE OF POLYBUTADIENES, SO THAT AT A SINGLE MOL. WT., DEPENDING ON THE RATIO OF CIS AND TRANS UNITS, THE VISCOSITY MAY VARY OVER A MORE THAN TENFOLD RANGE. THE GLASS TRANSITION TEMP. AND ACTIVATION ENERGY OF VISCOUS FLOW RISE REGULARLY WITH INCREASING TRANS CONTENT IN THE POLYMER CHAIN, THESE PARAMETERS BECOMING INDEPENDENT OF THE MOL. WT. FOR SPECIMENS WITH M LARGER THAN M_{SUBC} WITHIN A SERIES OF POLYBUTADIENES OF EQUAL MICROTACTICITY. THERMOMECH. INVESTIGATIONS OF POLYBUTADIENES ALSO MADE IT POSSIBLE TO DEFINE MORE ACCURATELY THE BOUNDARIES OF THE CRYSTN. REGION AND THE DEPENDENCE OF THE MELTING POINT ON THE MICROTACTICITY. THE RESULTS OBTAINED ARE DISCUSSED ON THE BASIS OF MODERN IDEAS OF POLYMER STRUCTURES.

UNCLASSIFIED

Acc. Nr: **AP0052540** Abstracting Service:
CHEMICAL ABST. 5-7c

Ref. Code:

UR 0459

M

101188j High elasticity of 1,4-polybutadienes of different microtacticity. Malkin, A. Ya.; Kulichikhin, V. G.; Zolugina, M. P.; Vinogradov, G. V. (Inst. Neftekhim. Sin. im. Topicheva, Moscow, USSR). *Vysokomol. Soedin., Ser. A* 1970, 12(1), 120-8 (Russ). The viscosity changes, viscoelastic deformation (γ) vs. shear rate ($d\gamma/dt$), γ vs. mol. wt., γ vs. shear stress, elasticity modulus vs. shear stress, the effect of 1,4-cis units content on the elasticity modulus, and related rheol. properties of 1,4-polybutadienes (I) were studied at 50°, 10^{-1} - 10^2 sec $^{-1}$ $d\gamma/dt$, and 5×10^2 - 10^3 P viscosity ranges. Low mol. wt. I did not obey Hooke's shear law. There was a sharp difference in rheol. properties of I below and above a crit. mol. wt. value, the magnitude of which depended on the tacticity and on $d\gamma/dt$. In the low $d\gamma/dt$ region the above relations agreed with A. S. Lodge's theory (1964). Non-Newtonian flow begins after reaching the crit. mol. wt. and the crit. $d\gamma/dt$.

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19821183

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Acc. Nr:

AP0052539

Abstracting Service:

CHEMICAL ABST. 5-70

Ref. Code:

HR0459

101597a Changes in the viscoelastic properties of 1,4-polybutadienes during vulcanization. Kulichikhin, V. G.; Malkin, A. Ya.; Vinogradov, G. V. (Inst. Neftekhim. Sin. im. Topchieva, Moscow, USSR). *Vysokomol. Soedin., Ser. A* 1970, 12(1), 129-34 (Russ). Samples of 1,4-polybutadiene rubber (I) were vulcanized at 80° using S-ZnO-(Me₂NCS)₂S₂ vulcanizing system. The changes of I viscosity, visco-elastic deformation, elasticity modulus, normal stress, tangential stress (required to produce a given deformation), and the amt. of sol. fraction in I with the vulcanization time had an induction period (θ). The viscosity θ decreased linearly with I mol. wt. increase. After θ was reached, the viscosity increased uniformly until the 3-dimensional I structure was established. The elasticity modulus had its max. at the gel point. CPJR

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19821182

Polymers

THE RHEOLOGY OF POLYMERS
(Symposium in Moscow)

Edited by Doctor of Physical and Mathematical Sciences
Mikhail Mironov, Institute of Chemical Physics, USSR Academy of Sciences, U.S.S.R.
Moscow, 1972, pp 119-121

Rheological investigations are being developed in the USSR as in the present time; firstly, as a component part of physicochemical work pursuing the goal of establishment of general correspondences between the molecular structure of a substance and its macroscopic properties and, secondly, as a connection between the mechanics of continua which is interested in finding and in solving the corresponding boundary problems and their application to analysis of concrete technological processes. At the regular (Seventh) symposium on the rheology of polymers, organized by the Institute of Petrochemical Synthesis from 22 to 26 September of the AS USSR and held on 10-14 April in Moscow, main attention was given to the first direction of investigation. Participating in the sessions were over 300 persons, including a group of scientists from East Germany, Poland, Czechoslovakia, Bulgaria, about 100 reports were heard. Discussed at the symposium was a broad complex of problems connected with the physical chemistry and mechanics of polymeric materials, theory of the molecular nature of relaxation effects in macromolecular chains, and the construction of mechanical models for the quantitative description of the behavior of a polymer under different conditions of deformation with detailed comparison of the molecular parameters of reliably characterized samples and of viscoelastic properties. Discussed with special interest was the problem of the liquid crystalline state and the influence of the physical structure of the system on its rheological properties.

The symposium was opened with the addresses of greeting of K. A. Andrianov and A. Yu. Ishlinsky, who emphasized the

Stavitskiy described the general rheological and problems of the use of stable colloids as "workhorse" in the investigation of relaxation effects in solutions of polymers.

The traditionally great attention was given to examination of the results of study of the rheological properties of solutions, lattices and dispersions of polymers. In his report, Ye. V. Il'inskiy generalized the results achieved in the description of the concentration dependences of various rheological properties of polymers in the entire region of concentrations and cited general (relaxational and thermodynamic) explanations of the reasons for the influence of the nature of the solvent on the viscosity and high elasticity of solutions of polymers. L. V. Il'inskiy and A. Ye. Chel'kovskiy presented a comparison of the viscosity and diffusive properties of solutions of polymers of different molecular weight in different solvents, and also the micro- and macroviscosities of these systems.

A promising method of studying pyrolytic systems in a broad range of temperatures and relaxation transitions, based on measurement of the dynamic properties of the polymers (the model of elasticity and mechanical losses) has recently become very widespread. That direction of investigation was represented in the reports of Ye. G. Yemchuk on the results of study of the dynamic properties of linear polymers during variation not only of the frequency but also of the amplitude of action, of Ye. A. Shcheglovich, G. A. Pechay and A. I. Harey on the results of use of the dynamic method to investigate mixtures of polymers of different molecular weights, of S. K. Abramov and Ye. V. Yermolenko on new methods of investigating the dynamic properties of solid polymers, etc. The dynamic method also is used to measure normal stresses during the periodic shearing strain of a fusion. This methodically very complex direction was represented by the report of A. I. Aleksyandro and L. A. Lyubimov. The question of principal importance of the propagation of vibrations in isotropic (that is, varying their properties under the effect of these vibrations) media was analyzed by I. P. Bryzgalov.

Interest was aroused by reports on the investigation of the rheological properties of technologically important polymeric materials -- polyethylene, high-impact polystyrenes, polyformaldehyde, and plasticized polyvinyl chloride. Ye. A. Voronov, A. S. Berezinskiy and T. I. Sokolova described the effect of cross-linking agents on the viscosity of polyamides.

The themes of a number of reports dealt with rheological problems in the processing of polymeric materials and the solution of hydrodynamic problems relating to that theme, which is connected with considering rheology as the theoretical basis of

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USSR

UDC 621.396.6--181.5 (088.8)

BARANOV, A.I., DATSKIAURI, V.D., VOSENEOYNIKOV, I.I., GAVRILOV, R.A., GILYATKIN, V.P., GOLUBTSOV, M.S., ZAMIKHOVERIY, M.B., ZALIPSKIY, A.I., ZLOTIN, V.A., KAZATSKER, L.I., LAGUTAIN, G.V., LARIONOV, YU. S., PREDRAZHENSKIY, S.P., MAIKIN, D.I., RAMENSKIY, I.V., SEMENOVA, I.S., TIKHOMIROV, B.G., FISHCHIK, I.S., SHUBERT, M.M.

"Device For Deposition Of Multilayer Coverings In A Vacuum"

USSR Author's Certificate No 279291, filed 16 June 68, published 30 Nov 70 (from RZh--Radiotekhnika, No 9, Sep 1971, Abstract No 9V272P)

Translation: A device proposed for deposition of multilayer coverings in a vacuum is fulfilled in the form of a number of successively mounted independent operating chambers supplied with evaporators, heaters, and an exhaust system. The device contains a mechanism for transporting substrates, a mechanism for loading and unloading, and a drive mechanism. With the object of increasing the reliability of the device and improving the quality and reproducibility of the coverings deposited, outside of the area of the arrangement of operating chambers and parallel to it a supplementary vacuum chamber is installed, which serves for the deposition in it of the transporting mechanism, and which communicates with each of the operating chambers by means of vacuum-overlapping transfer windows located on the side wall

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BARANOV, A. I., et al., USSR Author's Certificate No 279291, filed 16 June 68, published 30 Nov 70 (from RZh--Radiotekhnika, No 9, Sep 1971, Abstract No 9V272P)

of the supplementary chamber at places for connection to it of the operating chambers. Each of the operating chambers or a group of them is provided with an individual system of high-vacuum pumping.

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1/2 017 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--EVOLUTION OF THE COHERENT STATES OF A CHARGED PARTICLE IN A VARYING
MAGNETIC FIELD -U-
AUTHOR--(03)--MALKIN, I.A., MANKO, V.I., TRIFONOV, D.A.
COUNTRY OF INFO--USSR *M*
SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,
NR 2, PP 721-729
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--CHARGED PARTICLE, PARTICLE MOTION, ALTERNATING MAGNETIC FIELD,
TRANSITION PROBABILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1976/2067 STEP NO--UR/0056/70/058/002/0721/0729

CIRC ACCESSION NO--AP0043594
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0043594

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NEW INVARIANTS ARE FOUND IN THE PROBLEM OF A CHARGED PARTICLE IN A VARYING MAGNETIC FIELD. COHERENT STATES OF A CHARGED PARTICLE IN A UNIFORM VARYING MAGNETIC FIELD ARE INTRODUCED. THE TRANSITION PROBABILITIES BETWEEN LANDAU LEVELS CALCULATED FOR MAGNETIC FIELDS CONSTANT IN THE REMOTE PAST AND REMOTE FUTURE CAN BE EXPRESSED IN TERMS OF JACOBI POLYNOMIALS. EVOLUTION OF THE INITIAL COHERENT STATES IS ALSO DETERMINED. THE GROUP ASPECT OF THE PROBLEM IS DISCUSSED.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--KINETIC ENERGIES AND MASS DISTRIBUTIONS OF FRAGMENTS OF CURIUM-244
SPONTANEOUS FISSION -U-
AUTHOR--(05)-ALKHAZOV, I.O., KOSTOCHKIN, O.I., KOVALENKO, S.S., MALKIN,
L.Z., PETRZHAK, K.A.
COUNTRY OF INFO--USSR
SOURCE--YAD. FIZ. 1970, 11(3), 501-7
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--CURIUM, ENERGY SPECTRUM, PARTICLE DISTRIBUTION, FISSION
PRODUCT, SEMICONDUCTOR DETECTOR, COINCIDENCE COUNTING
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1991/1057 STEP NO--UR/0367/70/011/003/0501/0507
CIRC ACCESSION NO--AP0110747
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0110747

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A SURFACE BARRIER SI DETECTOR SYSTEM OF 4 TIMES 10 PRIME NEGATIVE 7 SEC RESOLN. WAS CALIBRATED BY THE ALPHA LINE OF PRIME 239 PU AND THERMAL N IRRADIATED PRIME 235 U TO MEASURE THE FISSION DATA OF PRIME 244 CM ELECTRODEPOSITED ON 80 MU G=CM PRIME 2 OF AL; SMALLER THAN 1PERCENT OF THE FISSION EVENTS COINCIDED WITH ALPHA EMISSIONS. THE KINETIC ENERGY AVERAGED 188.6 PLUS OR MINUS 1.6 MEV; THAT OF THE LIGHT WT. FISSION PRODUCTS (AV. MOL. WT. 104.6 PLUS OR MINUS 1.0) 107.5 PLUS OR MINUS 1.2 MEV; THAT OF THE HEAVY FISSION PRODUCTS (AV. MOL. WT. 139.0 PLUS OR MINUS 1.4) 81.1 PLUS OR MINUS 1.0 MEV. THE STD. INCLINATIONS WERE 11.5 MEV AND 5.9 AMU. IN ADDN.; STABLE MASSES OF 146, 140, 137, 136, AND 134 AMU WERE ASSOCD. WITH 162-9, 180-8, 196-299, 202-6, AND 208-16 MEV.

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AA0047085

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UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

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241516 CONVERTER SUBSTATION FOR HIGH-VOLTAGE D.C.

TRANSMISSION is made more reliable. It employs a reserve block (1) which is connected in the middle of the converter system. Normally the reserve block is shorted (2) and earthed via switchgears (3,4). In case of a unit is damaged it is shorted by its own switch (5) and switchgear (4) is automatically opened followed by the removal of short (2) from the reserve unit. If a unit is to be removed from the right-hand side switch (6) and switchgear (3) are operated.

25.1.65 as 940712/24-7 A.N.FILIMONOV et al. (19.9.69)
Bul 14/18.4.69. Class 21d¹. Int.Cl.H 02j.

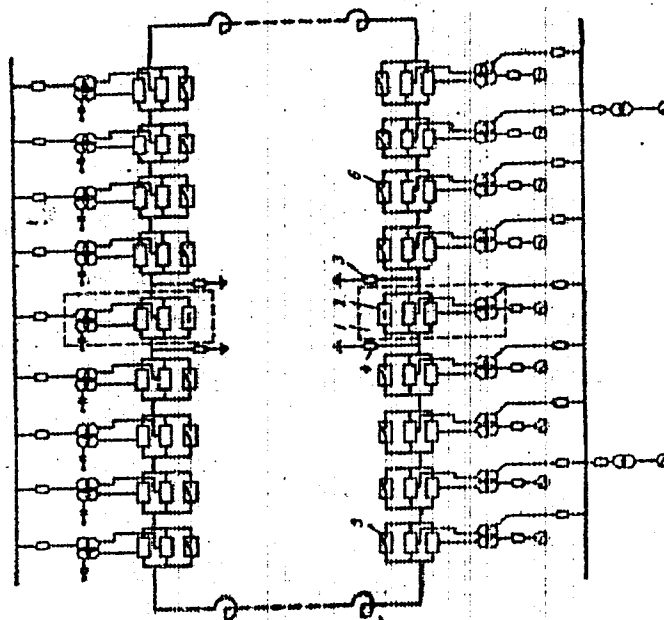
AUTHORS: Filimonov, A. N.; Kegeles, M. B.; Malkin, P. A.

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19790562

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19790563

Physiology

USSR

GAZENKO, O., Corresponding Member, Academy of Sciences USSR, GIPPEN-REYTER, YE., Candidate of Biological Sciences, and MALKIN, V., Doctor of Medical Sciences

"Hypoxia as the Cause of Illness"

Moscow, Nauka i Zhizn', No 1, 1970, pp 50-57

Abstract: A study was made of the physiological effects of living and working high altitudes on the human body. Experiments were conducted with pressure chambers which simulated conditions at different altitudes and with persons actually engaged in research and activities at various altitudes. It was determined that at altitudes of 2500-3500 meters, a sense of euphoria is observed, similar to the results of light alcoholic intoxication. At altitudes of 4000-5000 meters, there is a worsening of well-being. Stimulation is replaced by a drop in mental disposition, apathy and melancholia develop, and interest in the environment is dulled. At altitudes of about 5000-7000 meters and higher, well-being is rarely observed. General weakness, fatigue and a heaviness in the whole body are felt. Pain in the temples and frontal and rear parts of the head does not stop. Vertigo develops upon abrupt movements. The skin of the face, especially of the lips,

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GAZENKO, O., et al., Moscow, Nauka i Zhizn', No 1, 1970, pp 50-57

acquires a pale, bluish tint due to the inadequate supply of oxygen in the arterial blood. Chill and a 1-2 degree body temperature rise are observed. Nose bleed and even hemoptysis become more frequent, and sometimes gastric hemorrhage occurs. At these altitudes, there are significant changes in higher nervous activity. Normal sleep is disrupted. Often auditory and visual illusions and hallucinations are observed. It was determined that these illusions and hallucinations emerge as a result of cerebral oxygen insufficiency, and possible because of dehydration.

Various measures were recommended to lessen the effects of high-altitude operations. These included a variety of vitamins and drugs, both individual and group psychoprophylaxis to instruct people in what symptoms and effects to expect, and preliminary short-time exposure in different ways to various altitudes for acclimatization purposes. For extremely high-altitude work, oxygen masks were recommended.

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...ing an abundance of oxygen supplied under pressure. As background to the Russian translation of the article appearing in this issue of Nauka i Zhizn', Malkin discusses the main elements of respiratory function, the anatomical structure of the lungs, bronchi, and alveoli, the problem of controlling excess carbon dioxide, how Malpighi discovered capillaries in 1661, and description of Robert Hook's experiments which refuted the long prevalent view that respiratory function is associated solely with thermo-regulation.

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USSR

MALKIN, V.

"Some Notes on D. Kilstra's Article 'Breathing Water'"

Moscow, Nauka i Zhizn', No 5, 1969, pp 54-60

Abstract: In an article published in Scientific American (August 1968), Kilstra described various experiments designed to show whether animals (do)

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UDC 612.751+612.311/.015.3-06:/612.223.11+612.273.2

VOLOZHIN, A. I., VASIL'YEV, P. V., and MAL'KIN, V. B., Chair of Pathological Physiology, Moscow Medical Institute of Stomatology, Moscow

"The Effects of a Gaseous Medium With a Deficiency of Oxygen and an Excess of Carbon Dioxide on Calcium and Protein Metabolism in the Bones and Teeth"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 3, May-Jun 73, pp 20-24

Abstract: Rats were kept for 20 or 30 days under conditions of fractional (6 hrs per day), gradually increasing hypoxia (405 mm Hg on stepwise reduction from 525 mm Hg within 5 days), while the CO₂ concentration in the air which they inhaled was gradually increased from 3 to 5%. This led to a reduction of the rate of loss of ⁴⁵Ca from bone tissue and an increase of incorporation of ⁴⁵Ca into this tissue. The rate of incorporation of ²⁻¹⁴C-glycine into the total proteins of the bones and teeth was increased. The increase in synthetic processes in the bone tissue was presumably associated with a reduction of the regional circulation affecting this tissue, which is insensitive to hypoxia, while the circulation supplying O₂ to hypoxia-sensitive tissues was increased. Artificial gas media deficient in O₂, but containing an excess of CO₂, can presumably be used to prevent demineralization of bones of the skeleton as a

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VOLOZHIN, A. I., et al., Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 3, May/Jun 73, pp 20-24

result of the enforced reduction of motor activity and weightlessness under conditions of prolonged space travel.

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MALKIN, V. B.

SO:JPRS 54435
9 NOV 71

UDC: 612.766.2.014.464

THE EFFECT OF AN ALTERED GAS ENVIRONMENT ON SOME PHYSIOLOGICAL EFFECTS OF
PROLONGED HYPOXEMIA (EXPERIMENTS ON ANIMALS)

Article by V.V. Vasil'ev, V.B. Malkin, A.I. Volozhin, Ye.V. Loginova, V.Ye.
Prizkin, N.A. Zakharchina, N.M. Vasil'eva, Moscow, Vestnik Akademii Meditsinskikh
Nauk SSSR, Moscow, No 9, 1971, pp 78-83]

In the course of investigating the effect on the organism of prolonged hypoxemia the conception of a hypodynamic syndrome was formed which is characterized by specific functional disturbances which diminish the organism's adaptive capabilities (A.R. Kozlovskaya et al., 1966; L.I. Kharin et al., 1966; L.I. Kharin, 1966; Miller and Leverett, and others).

Various measures have been proposed to prevent development of the hypodynamic syndrome: physical exercise (A.V. Verenin et al., 1969; V.I. Stepanov and A.V. Yermolov; Brunton et al., Miller et al., and others), use of arm and leg cuffs (I.D. Petrov, Vozil, Stevens et al., and others), use of pharmacological preparations (P.V. Vasil'ev and N.Ye. Lapinskaya; Rahn et al.; McGally et al.) and, finally, use of an "active" gas environment. The purposefulness of special gases as a means of preventing development of decompensating phenomena was theoretically substantiated in the works of Soviet and foreign researchers (V.B. Malkin et al.; V.V. Vasil'ev and N.K. Galova, and others).

These studies are indicative of the effectiveness of using "hypoxic" gas environments, and our authors called serious attention to a regimen of "hypoxic" training. Their studies established that optimum effectiveness is observed with step-by-step elevation to increasing altitudes, staying there for 6-8 hours and descending for 28-36 hours every day (etc.). Such a regimen of training for hypoxia is most effective for development of compensatory reorganization on the molecular and cellular levels (V.V. Vasil'ev et al.).

The purpose of the present work was to investigate the possibility of using various gas environment receptors as a means of preventing development of the hypodynamic syndrome.

Methods. The investigations were conducted in four series of experiments on 400 anesthetized albino male rats, weighing 120 to 200 grams. The distribution of animals in groups and experimental conditions are shown in Table 1.

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UDC 577.4

MEYERSON, F. Z., KALKIN, V. B., AMANUROVA, L. A., LOGINOVA, YE. V., and
MAYZELIS, M. YA., Institute of Normal and Pathological Physiology, Academy
of Medical Sciences USSR

"Effect of RNA Synthesis Inhibitor on the Development of Adaptation to High-
Altitude Hypoxia"

Moscow, Izvestiya Akademii Nauk SSSSR, Seriya Biologicheskaya, No 3, May/Jun
72, pp 405-412

Abstract: The importance of increased nucleic acid and protein production
in adaptation to high-altitude hypoxia was evaluated by administering
actinomycin 2703 -- an RNA synthesis inhibitor -- to rats raised in 500
meter increments to 7,000 meters over a 25-day period in an altitude chamber
(6 hrs/day exposure). Experiment variations included rats unadapted to
hypoxia (control) (1), adapted over 25 days (2), unadapted and given actino-
mycin for 5 days (3), and adapted over 25 days and given actinomycin from
the 20-25th days (4). Weight gain rate decreased in group 2 as compared
to controls, weight decreased 7% in group 3, while weight decreased 16% in
group 4 and 63% of the animals died during acute hypoxia generated by raising
them to 11,000 meters at 80-100 meters/sec. Protein synthesis in the
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MEYERSON, F. Z., et al., Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 3, May/Jun 72, pp 405-412

heart and cerebral cortex increased in group 2, remained normal in group 3, but decreased in group 4, indicating that actinomycin is inhibitory only during adaptation to hypoxia. While O_2 consumption decreased 30% in group 1 at 7,000 meters, by the 25th day of adaptation the decrease diminished to 10% in group 2. Actinomycin produced no significant changes in group 3 as compared to controls. In group 4 however, actinomycin caused O_2 consumption to decrease 20-25%. Moreover the consumption decreased 22% at sea level for this group, indicating that something other than the O_2 transport system had been affected, since O_2 is readily available and there is no stress on the transport system. This idea is further supported by the fact that while the breathing rate decreased over the adaptation period, actinomycin caused it to rise again. Nor did the drug cause abnormal changes in erythrocyte and hemoglobin counts. Finally, animals given actinomycin and exposed to acute hypoxia died not during exposure but on the following day in an abundance of O_2 . Thus it is suggested that actinomycin disrupts O_2 utilization -- i.e., mitochondrial function, rather than O_2 transport. The increased protein and nucleic acid production detected is a necessary part of adaptation to hypoxia, and it is inhibited by suppression of mitochondrial activity.

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USSR

UDC 591.152:612.8.015

BRUMBERG, V. A., GAZENKO, O. G., Corresponding Member of the USSR Academy of Sciences, DEMIN, N. N., WALKIN, V. B., NEVZER, L. Z., Physiology Institute imeni I. P. Pavlov of the USSR Academy of Sciences, Leningrad

"Topochemical Differences in the DNA Content in the Motoneurons of the Spinal Cord in the Case of Hypoxia and Hypokinesia"

Moscow, Doklady Akademii nauk SSSR, 1972, Vol 205, No 6, pp 1490-1493

Abstract: The reactions of the motoneurons of the cervical and lumbar enlargements of the spinal cord, that is, neurons which are similar morphologically and with respect to the neurotransmitter participating in their functional activity but different with respect to the group of muscles innervated by them, to hypoxia and hypokinesia were compared. A highly important fact in the experiments is that the motoneurons of the cervical enlargement innervate the diaphragm and the musculus intercostalis which play a significant role in the regulation of the respiration. Hyperventilation during hypoxia and some reduction in ventilation during hypokinesia essentially distinguish these two states. The experiment was performed on mature white male rats weighing 100 ± 20 grams divided into four groups: 1) one group in a pressure chamber at an "altitude" of 3,000 meters initially and then daily for 7 days raised by 500 to 1,000 meters and then held for 14 days at an "altitude" of 7,000 meters with daily

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BRUMBERG, V. A., et al., Doklady Akademii nauk SSSR, 1972, Vol. 205, No 6, pp 1490-1493

exposure for 6 hours under rarefied atmospheric conditions; 2) a second group subjected to prolonged forced hypokinesis by placing them for 20 days in small pencil-box cells significantly limiting the possible movements; 3) a third group subjected to the combined effect of hypoxia and hypokinesis for which the animals enclosed in the pen-box cells were placed in the pressure chamber and held under the same hypoxia conditions as the rats in the first group. There was a fourth control group. The decapitation and preparation procedures are described, and data are tabulated on the concentration of cytoplasmic DNA, the volume of cytoplasm and the absolute amount of cytoplasmic DNA in the motoneurons of the anterior horns of the cervical and lumbar enlargements of the spinal column in the presence of hypoxia and hypokinesis. The data indicate different natures of the hypoxic and hypokinetic forms of stress. Hypoxia affects primarily the group of motoneurons which innervates the respiratory musculature, and hypokinesis, and musculature innervating the lower extremities. Neither effect changes the amount of DNA in the neurons of the first group but they both have a similar effect (an increase) on the amount of DNA in the neurons of the second group. An explanation of the possible mechanism of these effects is given.

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USSR

UDC 681.332.65

CHAVCHANIDZE, V. V., BRODZELI, M. I., KERTSMAN, E. L., GORBUSHINA, L. P.,
and MALKIN, Ya. P.

"Electrooptical Trigger with Calculating Input"

USSR Author's Certificate No 277844, filed 20 May 69, published 3 Nov 70
(from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 6,
Jun 71, Abstract No 6 B210 P)

Translation: Electrooptical flip-flops based on optron-type polycrystals are well known. In particular, they can consist of a light radiator -- an electroluminescent capacitor -- and a photoreceiver -- a photoresistor. The basic principle on which polycrystalline electrooptical elements are built consists in realizing local optical coupling between the radiator and the photoresistor inside the optron and electrical coupling between the elementary cells. The proposed flip-flop is distinguished by the fact that in it two series-connected photoresistors are connected parallel to the electroluminescent cell connected in series to one of the photoresistors and coupled optically with it. One of the photoresistors is also optically connected to the electroluminescent cell, and the other, jointly with the first resistor, is connected to the input optical signal source. This permits an increase in operating stability of the system.

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AA0039788- Malkin, Ya. Z.

UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 3-40

236766 SMELTING OF ORES, CONCENTRATES AND WASTE PRODUCTS from production of non-ferrous metals in shaft furnaces, is modified by feeding hot metal gases previously mixed with cold or hot air or oxygen-enriched air through nozzles or burners situated above the level of the tuyeres. This enables the costs of the process to be reduced and production capacity of the furnace to be increased. 1.2.64. as 881159/22-2. Yu.A. AGAPOV et al. Chimkent Sec. M.I. Kalinin Lead Works, Non-Ferrous Metals Res. Inst. and Metallurgy & Ore Enrichment Inst. Acad. Sciences Kazakh SSR. (10.6.69.) Bul.7/3.2.69. Class 40a. Int.Cl.C22b.

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19741100

AA0039788

AUTHORS: Agapov, Yu. A.; Gavvoronskiy, A. G.; Yevdokimenko, A. I.; Yelyakov,
I. I.; Kovgan, P. A.; Malkin, Ya. Z.; Polyvyanny, I. R.;
Ponamarev, V. D.

Chimkentskiy Ordena Lenina Svintsovy Zavod imeni M. I. Kalinina, Gosudarstvennyy
Nauchno-Issledovatel'skiy Institut Tsvetnykh Metallov i Institut Metallurgii
i Obogashcheniya AN Kazakhskoy SSR

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19741101

USSR :

UDC 616.992-031.81-036.12

PETRUNINA, M. P., Candidate of Medical Sciences, ARIYEVICH, A. M., Professor, MAIKINA, A. Ya., Candidate of Biological Sciences, and KUNEL'SKAYA, V. Ya., Candidate of Medical Sciences, Diagnostic Department of the Moscow Institute of Tuberculosis, Institute of Medical Parasitology and Tropical Throat Institute of the Ministry of Health RSFSR, Moscow

"Chronic Disseminated Histoplasmosis"

Moscow, Klinicheskaya Meditsina, Vol 49, No 11, 1971, pp 148-150

Abstract: A 21-year old female student developed an acute disease involving headache, high fever, and rhinitis. The diagnosis of left maxillary sinusitis was established, and sinusotomy was performed in November 1967. In March 1968, the patient's persistent headache became more severe and aggravated by cough with mucous, pussy, hemorrhagic phlegm. On the basis of clinical observations and X-ray examinations, the diagnosis of infiltrative pneumonic tuberculosis was established, although tuberculosis mycobacteria were not isolated. Administration of streptomycin, tubazid, and PAS was discontinued after a month because of coating and erosion of the tongue and gums. Smears of these organs revealed Candida fungus, and the diagnosis of candidomycosis of the lungs and the mouth was established. Administration of nystatin and levorin improved

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PETRUNINA, M. P., et al., Klinicheskaya Meditsina, Vol. 49, No. 11, 1971, pp 148-150

the patient's overall condition but not that of her lungs. In September 1968, she was hospitalized with sharp pain in the left thorax, cough, and headache, *but normal digestion, skin, normal visible mucous membranes, and lymph nodes.* X-rays revealed dark areas in the lower portions of the lungs and a moderate opacity of maxillary and frontal sinuses. Subatrophy and hemorrhages were observed in the nasal mucosa. Blood sedimentation rate was 57 mm/hr. No pathogens of systemic mycoses were found in bronchial and sinus wash fluid. However, after sternal puncture, Histoplasma cells were observed in the protoplasm of bone marrow cells. After a 3-week long administration of mycstatin, with 5,000,000 units per day, the opaque structure in the left lung was replaced with fibrous tissue. By that time, the patient's headache became intolerable, her maxillary sinuses were uniformly darkened and her nasal mucosa was hyperemic, superficially ulcerated, and covered with an exudate. Puncture of the right maxillary sinus yielded a considerable quantity of grayish-white pus. A sample of that pus was treated with tetracycline and injected intraperitoneally into nine mice. Subsequent necropsy revealed enlargement of the spleen in all animals and the presence of large numbers of Histoplasma capsulatum cells inside reticular tissue cells. Administration

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PETRUNINA, M. P., et al., Klinicheskaya Meditsina, Vol 49, No 11, 1971, pp 148-150

of amphotericin B (a total of 2,000,000 units) brought no improvement. After a second treatment with nystatin (a total of 60,000,000 units), the dark area in the right lung also changed into fibrous tissue. In June 1969, surgery was performed on the maxillary sinuses: the considerably thickened, hyperplastic, granulated mucosa of the sinuses was removed, and passages communicating with the nasal cavity were created. Histoplasma capsulatum was found in the excised mucosa. After the surgery, the patient's condition significantly improved and remained satisfactory throughout the year of observation.

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USSR

UDC 911.3.616.928.6(47+57)

ARIYEVICH, A. M., STEPANISHCHEVA, Z. G., LYSENKO, A. Ya., ~~MALKINA, A. Ya.~~,
AGARUNOVA, Yu. S., DARCHENKOVA, N. N., BARKOV, V. N., and MINSKER, O. B.

"Three-Year Study of Histoplasmosis in the USSR"

V. sb. Materialy Nauchn. konferentsii, posvyashch. 50-letiyu In-ta med. parazitol. i trop. med. (Proceedings of the Scientific Conference Commemorating the 50th Anniversary of the Institute of Medical Parasitology and Tropical Medicine -- collection of works), Moscow, 1970, pp 61-63 (from RZh-36. Meditsinskaya Geografiya, No 1, Jan 71, Abstract No 1.36.124)

Translation: A total of 31 cases of histoplasmosis were recorded in the USSR by the beginning of 1970. Of these, 24 were in Western Siberia. A total of 690 soil specimens were examined, gathered from sites where histoplasmosis was recorded (Tyumenskaya oblast, Turkmen SSR and others) and from sites having no cases (Armenian SSR and the environs of Moscow). The agent of histoplasmosis was isolated from soil of the Turkmen SSR. In one out of 50 house mice (in Turkmen SSR) signs were found of histoplasmosis. Skin tests (176 in Tyumen oblast and 591 in Turkmenia) were made yielding positive results in 2% and 5.6% of the cases studied, respectively.

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USSR

M UDC 678.674.004.14:621.397 6

SEDOV, L. N., VLADIMIROVA, Z. V., SAPOZHNIKOVA, YE. I., MAKEYEVA, A. A., SEMENOV, L. G., MAK-MILLIN, D. M., BAKANOV, YU. A., DIDZHYULENE, D. I., MALKINA, F. S., and ZHLABIS, S. B.

"Polyester Hermetic-Sealing Compounds"

Moscow, Plasticheskiye Massy, No 6, 1970, pp 61-62

Abstract: The authors studied compounds for the hermetic sealing of horizontal output transformer coils for television receivers. These compounds should have low viscosity in the initial state and a high hardening rate up to 100°C. In the hardened state they should possess self-extinguishability, water resistance, good mechanical and electric insulation properties, and stability of properties up to 120°C. The principal components chosen were polyester resins PN-1 and PN-69. Because of the requirement of self-extinguishability, special additives (antimony trioxide and chlorine- or fluorine-containing polymers) were introduced into the resins. In addition, mineral fillers (talc, mica, powdered quartz, titanium dioxide, powdered silica gel, etc.) were added to give the sealing compounds

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SEDOV, L. N., et al, Plasticheskiye Massy, No 6, 1970, pp 61-62

the requisite viscosity and to lower their cost. The article gives data on the hermetic sealing process. These self-extinguishing compounds are being used for the hermetic sealing of horizontal output transformers for black-and-white (1 class) and color television sets and viewing monitors.

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MALKINA, I. S.

Biology

Biological Sciences

SO:JPRS 53307

Q1 JPRS 71

Voprosy fiziologii cheloveka i zhivotnykh (Questions of the Physiology of Man and Animals). Institute of Physiology imeni I. P. Pavlov. Leningrad, 1970, 238 pages with ill., 2400 copies, 1 r 85 k.

I. S. Malkina, Yu. L. Tsel'niker, and A. S. Yakshina. Fotosintez i dykhanie podrostka. Metodicheskiye podkhody k izucheniyu balans organicheskogo veshchestva (Photosynthesis and the Respiration of Second Growth. Methodical Approaches to the Study of the Balance of Organic Matter). Moscow, 1970, 184 pages, 1300 copies, 1 r 14 k.

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USSR

UDC 620.193.01.669.29

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TSODIKOV, V. V., DANILKIN, V. A., YAKIMENKO, I. M., ~~MALKINA, R. I.~~ and
MELESHKINA, YE. P.

"Hydrogenation of Titanium and Platinized Titanium With Cathode Polarization in
an Alkaline Medium"

Moscow, Zashchita Metallov, No 4, 1972, pp 446-448.

Abstract: The authors studied the influence of platinum, galvanically deposited on the surface of titanium, the duration of cathode polarization, current density, the presence of potassium bichromate in the solution on the quantity of hydrogen absorbed during cathode polarization. The electrolyte consisted of potassium carbonate and potassium hydroxide. The results indicated that hydrogenation of platinized titanium increases with time according to a parabolic curve. The influence of the platinum layer decreases with the passage of time. The presence of bichromate in the solution decreased the hydrogenation of titanium, with and without the platinum layer. The bichromate probably reacts with the hydrogen on the surface of the electrode, without separation of chromium. When platinized titanium is stored in air, or particularly in the carbonate-alkaline solution being studied, hydrogen content drops rather sharply with the current off.

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172 018
UNCLASSIFIED
TITLE--SPECTROPHOTOMETRIC STUDY OF THE COMPLEXING OF RARE EARTH ELEMENTS
IN NITRATE SOLUTIONS -U-
AUTHOR--(05)-KLYGIN, A.YE., SMIRNOVA, I.D., KOLYADA, N.S., MALKINA, YE.N.,
GERTSEVA, A.M.
COUNTRY OF INFO--USSR
PROCESSING DATE--30OCT70
SOURCE--ZH. NEORG. KHIM. 1970, 15(3), 622-8
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--SPECTROPHOTOMETRIC ANALYSIS, NITRATE, NITRIC ACID, RARE EARTH
METAL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1608
STEP NO--UR/0078/70/015/003/0622/0628
CIRC ACCESSION NO--AP0112602
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0112602

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HNO SUB3 SOLNS. OF LN (ND, PR, EU, DY, HO, ER, AND YB) NITRATES CONTAIN LN PRIME3 POSITIVE, LN(NO SUB3) SUB3 .HNO SUB3, AND LN(NO SUB3) SUB3 .3HNO SUB3. COMPLEXING IN LN PRIME3 POSITIVE-HNO SUB3-H SUB2 O SYSTEMS WAS DETD. SPECTROPHOTOMETRICALLY AND FORMATION CONSTS. WERE CALCD. BY THE LEAST SQUARES METHOD. THE MECHANISM OF LN PRIME3 POSITIVE EXTN. BY BU SUB3 PO SUB4 FROM HNO SUB3 SOLN. IS DISCUSSED. IT IS ASSUMED THAT AT THE CONDITIONS WHERE LN(NO SUB3) SUB3 .HNO SUB3 FORMS AT THE HIGHEST YIELD, THE DISTRIBUTION COEFF. D OF LN PRIME3 POSITIVE HAS THE LOWEST VALUE. THE MARKED INCREASE OF D AT HNO SUB3 CONCNS. LARGER THAN 5M IS DUE TO THE FORMATION OF LN(NO SUB3) SUB3 .3HNO SUB3 WHICH IS EXTD. BY BU SUB3 PO SUB4.

UNCLASSIFIED

USSR

UDC 65-658.562

KARTAMYSHEV, G.N., MALKIS, A.D., and FINNEL', A.I., Engineers

"Machineless Information Monitoring and Control System"

Moscow, Mekhanizatsiya i Avtomatizatsiya Proizvodstva, No 1, 1971, pp 19-22

Abstract: The use of still-expensive centralized monitoring machines in comparatively small enterprises is not always advantageous, since it significantly increases capital costs without any increase in output. However, it is possible for comparatively small enterprises to have a modern information monitoring and control system possessing most known merits of centralized monitoring machines. All the basic functions usually performed by such machines (except for digital recording) are effected in this system by groups of series devices and the unit method of circuit construction, in which each of the groups has the function of an analogous machine unit. The machineless system was developed by a branch of Yuzhgiprobiosintez [Southern State Institute for the Planning of Biosynthesis]. The article uses a hydrolysis plant to illustrate the construction principle of the system. A group centralized monitoring and control system is created, consisting of five functional units.

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USSR

KARTAMYSHEV, G.N., et al., Mekhanizatsiya i Avtomatizatsiya Proizvodstva, No 1, 1971, pp 19-22

Unit 1 includes pickups for various parameters of each hydrolysis apparatus, normalizing transducers, controllers with program setters, and slave mechanisms coupled with stop-control valves. The number of units corresponds to the number of hydrolysis apparatuses. Unit 2 consists of multiple-point recording and signaling potentiometers, with their number corresponding to the number of controlled parameters for each hydrolysis apparatus. Unit 3 is a mnemocircuit on a console with built-in signal indicators. Unit 4 consists of displays, the number of which corresponds to the number of controlled parameters in each hydrolysis apparatus. Unit 5 consists of remote-control blocks, slave mechanism position indicators, and bulbs signaling the position of the valves. The potentiometers are of the EPR-109RDM2 type; the electronic controllers, of the RPIB-T type. BR-01 relay units with a controlled dead zone serve as "overshoot" signals. The "overshoot" signaling system is similar to that existing in nearly all series information machines: for example, MARS-200, ELRU-2M, "Zenit," "Tsikl-2," "Pusk-3" etc., but is distinguished by the group display principle. The program setters used are BPVZ-01

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KARTANYSHEV, G.N., et al., Mekhanizatsiya i Avtomatizatsiya Proizvodstva, No 1, 1971, pp 19-22

program blocks with a cam program carrier, with three slide wires connected to the cam in the block. The instruments making up the machineless system are placed in two adjoining rooms with 6 x 9 m total floor space. The cost of this system is 49 percent below that of a system using the ELRU-2M machine and 16 percent below that of a system using individual measuring instruments for each parameter and individual control panels for each hydrolysis apparatus.

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USSR

UDC 621.397.132:621.397.331.2

MALKIYEL', B. S., MIZYUK, M. G., KIRLAN, V. N., MISHCHUK, N. A.

"Miniature Kinescope for Color Television"

Moscow, Tekhnika kino i televideniye, No. 7, 1971, pp 68-69

Abstract: The color kinescope described in this article is meant for individual viewing or as control-room monitor. It uses a system of color division with subsequent focusing, and magnetic switching of the beam produced by a single electron gun in the tube base. A longitudinal cross section of the tube, indicating its general construction, is sketched. The image measures 60 mm along the diagonal, the angle of the electron beam deflection is 40°, and the diameter of the tube neck is 13 mm. An explanation of the tube's operation is given. Two curves are given from which the permissible ripple in the supply voltage for the tube for obtaining pure colors can be estimated. A photograph of the tube together with its basic specifications is reproduced on the inside rear cover of the journal.

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USSR

UDC 621.385.832:681.327.67

M
MALKIYEL', B. S., DEDIK, O. O., MEL'NICHENKO, L. P., VASHCHENYUK, N. N.

"Storage Cathode Ray Tube"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztzy, Tovarnyye Znaki,
No 16, 8 May 70, p 32, Patent No 269981, Filed 11 Feb 67

Translation: This Author's Certificate introduces a storage cathode ray tube with a visible image and pickup of the analog signal containing an electron gun, a deflecting system, and a storage unit comprising a distributed cathode, a collector and a target. The tube is distinguished by the fact that in order to improve uniformity with respect to the read signal amplitude the tube contains a collimating lens and a retarding grid with a screen ring in front of the collector on the electron gun side.

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USSR

UDC 621.373.52

MAL'KO, G. B.

"A Sawtooth Voltage Generator"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratsy, Tovarnyye Znaki, No 4, Feb 72, Author's Certificate No 326720, Division H, filed 6 Apr 70, published 19 Jan 72, p 212

Translation: This Author's Certificate introduces a sawtooth voltage generator which contains a current-stabilizing discharge transistor, a shaping capacitor and a charging diode. As a distinguishing feature of the patent, the linearity of the output sawtooth voltage is improved by grounding the base of the current-stabilizing transistor through an auxiliary winding on the secondary side of the squegging oscillator transformer and through a series-connected resistor, and by connecting the collector of this transistor to the base through the shaping capacitor, and to the collector of the squegging oscillator thyraactor through the charging diode.

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USSR

UDC: 621.373.531.2(088.8)

MAL'KO, G. B.

"A Relaxation Oscillator"

USSR Author's Certificate No 259955, filed 15 Jul 68, published 28 Apr 70
(from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11G196 P)

Translation: This Author's Certificate introduces a relaxation oscillator which contains main and auxiliary blocking oscillators with variable parameters of the time-setting circuits and one transformer with a single primary and two secondaries. To produce stepped pulses, the collector of the transistor in the main blocking oscillator is connected to the initial end of the transformer primary through a semiconductor diode, which is connected in the forward direction. The collector of the transistor in the auxiliary blocking oscillator is connected directly to a tap of the transformer primary. The circuit may utilize several blocking oscillators, the collectors of the transistors in the additional blocking oscillators being connected to taps of the primary winding through diodes connected in the forward direction.

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USSR

UDC: 621.373.531.3(088.8)

MAL'KO, G. B.

"A Transistorized Pulse Generator With Transformer Feedback"


USSR Author's Certificate No 265940, filed 30 Mar 67, published 27 Jan 70
(from RZh-Radiotekhnika, No 2, Feb 71, Abstract No 2G280 P)

Translation: This Author's Certificate introduces a pulse generator which contains a main transformer and several transformers with alternating magnetization having cores with rectangular hysteresis loop. In order to produce oscillations of complex shape, connected in parallel with the collector-emitter junction of the transistor in one of the arms of the generator is an additional transistor whose collector is connected to the tap of the primary winding in the arm of the main transformer. This winding is connected through a semiconductor diode to the collector of the generator transistor, and the base is connected to the secondary winding of one of the transformers whose primary windings are connected in a series circuit which is connected in parallel with the winding of the main transformer. Several additional transistors may be connected to taps of the primary winding of the main transformer in both the first and second arms of the generator.

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USSR

UDC: 621.372.632

MAL'KO, G. B. 

"A Relaxation Oscillator"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 3, 1970, p 47, patent No 259955, filed 15 Jul 68

Abstract: This Author's Certificate introduces: 1. A relaxation oscillator which contains main and auxiliary blocking oscillators with variable parameters of the time-mark networks, and a transformer with a single primary and two secondary windings. The distinguishing feature of this oscillator is that stepped voltage pulses are produced by connecting the collector of the transistor in the main blocking oscillator to the initial end of the primary winding of the transformer through a diode connected in the forward direction, while the collector of the transistor in the auxiliary blocking oscillator is connected directly to the terminal end of the primary winding. 2. A modification of this relaxation oscillator in which the distinguishing feature is that it contains several blocking oscillators, the collectors of the transistors in the auxiliary blocking oscillators being connected to taps of the primary winding through diodes which are connected in the forward direction.

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USSR

UDC 620.178.3:536.5

FRANYUK, V. A., RANSEVICH, V. B., and MAL'KO, I. I., Physics Branch of
Indestructive Control of the Academy of Sciences, Belorussian Soviet Socialist
Republic

"Radiation Method of Measuring the Temperature of Metal During
the Process of Fatigue Tests"

Moscow, Zavodskaya Laboratoriya, Vol 37, No 12, 1971,
pp 1476-1477

Abstract : A method is suggested and the installation has been
developed for remote temperature measuring of individual surfa-
ce parts of the investigated specimen by cyclic tests. Owing to
the scanning system, the temperature distribution on the speci-
men can be obtained in the form of oscillograms which are recor-
ded on a film. The range of measured temperatures is 25-300 °C,
the measuring accuracy is ± 1 °C. The determination time of the
endurance limit is considerably shortened because the speed of
temperature increase is being determined by the magnitude of the
applied voltage. Two illustr., three bibliol. refs.

1/1

. 145 -

USSR

UDC 669.017:537.32

NEMCHENKO, V. F., L'VOV, S. N., MAL'KO, P. I., and VERESHCHAKA, N. P., Kherson Pedagogical Institute imeni N. K. Krupskaya

"Temperature Dependence of the Absolute Thermo-e.m.f. Coefficient of Certain Transition Metals"

Moscow, Fizika Metallov i Metallovedeniye, Vol 30, No 5, 1970, pp 1088-1090

Abstract: The transition metals are widely used as structural materials in various high-temperature applications, particularly in electronic-vacuum devices. The high-temperature gradients and combinations of dissimilar metals may result in significant thermoelectromotive forces, which must be considered in many cases. Therefore, study of the thermoelectric properties of the transition metals is of great practical and theoretical significance. This work presents a determination of the temperature dependence of the absolute thermo-e.m.f. coefficient of the transition metals in subgroup IV A, as well as vanadium, chromium, iron, and nickel at 50-1,200°C. The nature of the temperature dependence of α_0 for ferromagnetic iron and the nonferromagnetic metals of

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USSR

NEMCHENKO, V. F., et al, Fizika Metallov i Metallovedeniye, Vol 30, No 5, 1970, pp 1088-1090

group IV was approximately the same. The temperature dependence of the absolute thermo-e.m.f. coefficient of the transition nonferromagnetic metals is just as complex as that of the ferromagnetic metals and can be qualitatively explained only by using a complex d-zone model.

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USSR

UDC 669.295

MAL'KO, P. I., ARENSBURGER, D. S., PUGIN, V. S., NEMCHENKO, V. F., and L'VOV, S. N., Institute of Problems of Material Science, Academy of Sciences Ukr SSR, Kherson State Pedagogical Institute imeni N. K. Krupskaya

"Thermal and Electrical Properties of Porous Titanium"

Kiev, Poroshkovaya Metallurgiya, No 8, Aug 70, pp 35-38

Abstract: A study was made of the dependence of the coefficient of thermal conductivity, the thermal expansion, the thermoelectromotive force, and the resistivity of titanium on 0-50% porosity in the interval from room temperature to 1200° C. Thermal conductivity and electrical conductivity decreased with an increase in porosity. It was not possible to apply formulas of generalized conductivity for the determination of the dependence of thermal conductivity and electrical conductivity on porosity. This is explained by the coarseness of grain size of the initial powder (1-0.1 mm).

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USSR

UDC 669.395:548.4:620.179:620.187.24.5

KOLACHEV, B. S., MAL'KOV, and SEDOV, V. I., Moscow Aviation Technology Institute

"Effect of Hydrogen on the Micromechanism of Failure in OT4 and OT4-1 Titanium Alloys"

L'vov, Fiziko-Khimicheskaya Mekhanika Materialov, No 3, 1973, pp 59-64

Abstract: The effect of hydrogen in the failure of OT4 and OT4-1 titanium alloys was studied by methods of electron microscopy, microfractography, and electrical resistance measurement. Sheet samples, 3 mm thick, were used which had the following chemical composition:

	Al	Mn	Fe	Si	C	H ₂	O ₂	H ₂
OT4	1.37	1.13	0.13	0.12	0.06	0.004	0.083	0.006
OT4-1	2.95	1.41	0.14	0.11	0.07	0.0046	0.081	0.0064

Alloy structure in the annealed condition was approximately 95% alpha-phase and 5% beta-phase, and vacuum annealing was used to reduce and vary hydrogen content. Electrical resistance was measured for alloy OT4 containing 0.006% H₂, subjected to a stress of 85 kg/mm². The relationship of resistance to time-to-failure showed that the alloy went through four stages to failure. These

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KOLACHEV, B. A., et al., Fiziko-Khimicheskaya Mekhanika Materialov, No 3, 1973, pp 59-64

stages were the incubation period (constant electrical resistance), stage of defect accumulation and initial fatigue cracks (smooth change of resistance), crack propagation (spastic resistance), and catastrophic crack development leading to failure. It is possible that stage three is a continuation of stage two. From the obtained data it was possible to conclude that increased hydrogen content in OT4-1 alloy does not change the stages of failure, but only its duration. The negative effect of hydrogen on long-time strength only starts upon reaching specified concentrations. When there is a hydrogen content of 0.012% in the alloy, plastic deformation occurs by twinning of the crystals. Four figures, one table, fourteen bibliographic references.

2/2

USSR

UDC: 669.017:539.37

KOLACHEV, B. A., GORSHKOV, YU. V., MAL'KOY, A. V., SEDOV, V. I., and DROZDOV, P. D.,
Moscow

"The Effect of Hydrogen on the Breakdown Strength of the OT4 and OT4-1 Grades of
Alloys"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 5, Sep-Oct 73, pp 102-107

Abstract: The authors study the effect of hydrogen on the critical coefficient of the intensity of stresses on the OT4 and OT4-1 titanium alloys during the testing of specimens with fatigue cracks for static console bending. This type of testing shows the susceptibility of sheet titanium materials to brittle fracture. The results show that the breakdown strength for the OT4 and OT4-1 alloys is somewhat increased at a hydrogen concentration in the order of 0.008-0.012 percent and then falls. The magnitude of the coefficient of stress intensity is not a constant of the material, but depends on a series of factors including hydrogen content in the alloy and the work time under load. The micro-breakdown mechanism changes as hydrogen content rises. Micro-cracks appear in the specimen during the formation and interaction of twins in the plastic deformation process up to a hydrogen content in the order of 0.01 percent for OT4-1 and 0.012 percent for OT4. Further increase in hydrogen concentration results in the realization of a new mechanism: splitting of the beta phases

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USSR

KOLACHEV, V. A., et al, Fizika i Khimiya Obrabotki Materialov, No 5, Sep-Oct 73, pp 102-107

and the formation of micro-cracks on the alpha-beta phase boundary division. The mechanism takes effect at hydrogen concentrations greater than 0.015 percent. The micro-breakdown mechanism affects the basic stages of micro-crack growth which ultimately is reflected in the ductility of the material.

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USSR

UDC 669.295.620.184:620.187.5

KOLACHEV, B. A., SEDOV, V. I., MAL'KOV, A. V., Moscow Institute of Aviation Technology

"Influence of Hydrogen on Structure of Fractures in OT4 Titanium Alloy"

Kiev, Fiziko-khimicheskaya Mekhanika Materialov, Vol 8, No 3, 1972, pp 80-82.

Abstract: This work is an attempt to estimate the influence of hydrogen absorbed by the metal on the fracture structure of specimens of OT4 titanium alloy (2.95% Al; 1.41% Mn; 0.14% Fe; 0.11% Si; 0.0044% H₂; 0.07% C; 0.081% O₂; 0.0046% N₂) during impact testing. The differences in the nature of the fracture are most clearly seen under the electron microscope. With hydrogen concentrations of not over 0.008 wt.% the microrelief is dominated by long "holes" and "ridges," the mean diameter of a "hole" decreasing with increasing hydrogen content. The "holes" cover about 80% of the surface. As the hydrogen content increases to 0.012 wt.%, the percentage of ductile fracture ("holes") decreases significantly, as the increased concentration of hydrogen seems to influence the ability of individual microvolumes of the material for plastic deformation. An increase in hydrogen content to 0.03 wt.% reduces
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USSR

UDC 669.295.620.184:620.187.5

KOLACHEV, B. A., SEDOV, V. I., MAL'KOV, A. V., Kiev, Fiziko-khīmicheskaya Mekhanika Materialov, Vol 8, No 3, 1972, pp 80-82.

impact toughness by a factor of 3, causing the appearance of areas of inter-grain fracture. Hydrogen begins to influence impact toughness significantly at about 0.012 wt.%.

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USSR

UDC 911.3.616.9:597.6(571.18)

KORSH, P. V., RAVDONIKAS, O. V., MAL'KOV, G. B., VORONIN, Yu. K., ZIMINA, V. Ye., KOSTYUKOV, V. P., IVANOV, V. S., FEDOROVA, T. N., YEGOROVA, L. S., RUDAKOV, V. A., CHULOVSKIY, I. K., and SHAYMAN, M. S.

"On Carrier Characteristics and Contacts With Vectors of Viral and Bacterial Infections Among Omskaya Oblast Wild Animals"

V sb. Vopr. infekts. patol. (Problems of Infection Pathology -- collection of works) Vyp. 2, Omsk, 1970, pp 75-78 (from RZh-Meditsinskaya Geografiya, No 4, Apr 71, Abstract No 4.36.51)

Translation: A table is presented of species composition of oblast wild animals and their relative population by individual landscape subzones in Omskaya oblast (64 species). Transmission of infections with natural foci was established in 27 species for the following diseases: tickborne encephalitis, Omsk hemorrhagic fever, rabies, tickborne scrub fever, Q fever, tularemia, erysipelas, toxoplasmosis, and leptospirosis.

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USSR

UDC 534.88(083.76)

MAL'KOV, I. YA.

"Standard and Model Hydrophones in the Subaudio and Audio Frequency Ranges"

Moscow, Izmeritel'naya Tekhnika, No 5, May 1973, pp 66-68

Abstract: A report is given on a series of metrological tests, conducted by the All-Union Scientific Research Institute of Metrology, on piston-type symmetrical piezoquartz and piezoceramic hydrophones, developed by the author and produced by the "Etalon" plant. The investigation was conducted by comparing the hydrophones with one another in a specially developed small quasi-static chamber. Research on the frequency characteristics and directionality characteristics showed that such hydrophones may be considered to have point action if their diameter does not exceed one quarter of the length of the incident wave. It is recommended that quartz hydrophones be used for calibration, and that piezoceramic hydrophones be used as standard instruments, in the subaudio and audio frequency ranges. Quartz hydrophones may also be used for investigating the relationship of the sensitivity of piezoceramic hydrophones to temperature and pressure. Piezoceramic hydrophones of the proposed design operate sufficiently well in radiation regimes. 3 tables. 3 figures. 5 references.

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USSR

UDC 614.882-084.48

ALEKSEYEVA, M. I., MANIKOV, L. M., TSETLIN, V. M., ~~MALIKOV, O. S.~~, SAVEL'YEVA, A. R., and STEPANOVA, O. L., All-Union Institute of Disinfection and Sterilization, Moscow

"An Aerosol Method for the Disinfection of Ambulances"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 4, 1973, pp 137-141

Abstract: Evaluation was made of the efficacy of different concentrations of hydrogen peroxide (I) aerosols in disinfecting ambulance interior and exterior surfaces. The surfaces were contaminated with *Staphylococcus aureus* or anthrax spores to a density of 10^5 - 10^7 cells/cm². The results showed that complete sterilization of the staphylococcus cells on interior surfaces could be attained with 3% I aerosol in 30 min at -6° to 22° and with an aerosol volume of 100 ml/m², whereas sterilization of the surfaces contaminated with the spores required 10% I and a volume of 200 ml/m². For the exterior surfaced 6% I, 400 ml/m², for 30 min was required to sterilize surfaces contaminated with staphylococcus, and 10% I was required for surfaces contaminated with the anthrax spores. Essentially similar results were obtained with calcium hypochlorite (5%, 100 ml/m², 60 min) and formaldehyde (10% and 20% for staphylococcus and anthrax spores, respectively, 100 ml/m², 30 min).

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Titanium

UDC 621.791.92:042.3:669.295

USSR

MAL'KOV, V. M., Engineer, YEMEL'YANOV, N. P., Candidate of Technical Sciences, and YEMEL'YANOV, N. I., Engineer, Central Scientific Research Institute of the Ministry of Railways

"Influence of Titanium on Surfacing With Powder Wires"

Moscow, Svarochnoye Proizvodstvo, No 2, Feb 71, pp 33-35

Abstract: The welding division of the Central Scientific Research Institute of the Ministry of Railways has developed three types of powdered surfacing wires providing surface metal hardness of HB250, 350, and 500 and increasing surface metal wear resistance by 2-4 times in comparison with type E42 electrodes. These wires provide surfacing of 12.5-28.0 g/a·hr, or 2-19 kg/hr material with currents of 160-700 a. The influence of titanium in the core of the powder wires on their welding technological properties and the content of gases, hardness, wear-resistance, and mechanical properties of the surface metal are studied. The optimal content of titanium, the primary deoxidizer, in the core of the powder wires with the TiO_2 - CaF_2 - CaO slag system selected is determined.

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M

Rare Metals

UDC 669.14.01.01.001.01:62-85

USSR

POVOLOTSKIY, D. Ya., MIL'KOV, N. V., OSHCHERKOV, Yu. P., and PLATONOV, S. A.,
Chelyabinsk Polytechnical Institute

"Influence of Rare-Earth Metals on the Structure and Technological Plasticity
of Chrome-Nickel Stainless Tube Steel"

Novokuznetsk, Izv. VUZ, Chern. Metallurgiya, No 10, 1978, pp 178-181

Abstract: The addition of 0.1% rare-earth elements (REM) to chrome-nickel steel has no influence on the structure of the metal upon crystallization of the metal in the form of the ingots, but decreases the transcrystallization rate and causes the grain fines upon crystallization as austenite. Addition of REM to austenitic chrome-nickel steel facilitates even dil. solution of nonmetallic inclusions in the cross section of ingots and rolled tubes. Microalloying of dil. REM in austenitic steel with REM causes a significant increase in technological plasticity of the metal at rolling temperatures.

1/2 039 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--HEAT RESISTANCE IN A VACUUM OF A CONTACT BETWEEN MACHINED METALLIC
SURFACES -U-
AUTHOR--MALKOV, V.A. M
COUNTRY OF INFO--USSR
SOURCE--INZHENERNO FIZICHESKII ZHURNAL, VOL. 18, FEB. 1970, P. 259-269
DATE PUBLISHED--70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--STAINLESS STEEL, MOLYBDENUM, HEAT RESISTANCE STAINLESS STEEL,
SURFACE PROPERTY, VACUUM MEASUREMENT, HIGH PRESSURE EFFECT, THERMAL
CONDUCTIVITY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/1457 STEP NO--UR/0170/70/018/000/0259/0269
CIRC ACCESSION NO--AP0109517
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--090CT70

2/2 039

CIRC ACCESSION NO--AP0109517

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. EXPERIMENTAL INVESTIGATION OF THE
HEAT RESISTANCE OF STAINLESS STEEL AND MOLYBDENUM CONTACT PAIRS AT
TEMPERATURES BETWEEN 250 AND 520 C IN A VACUUM AND PARTLY IN GAS MEDIA.
THE COMPRESSIVE LOADS WERE VARIED IN THE RANGE (1.5 TO 58) 100,000 N-SQ
M. THE RESULTS OF THE EXPERIMENTS ARE ANALYZED AND ARE COMPARED WITH
OTHER EXPERIMENTAL AND THEORETICAL DATA. THIS ANALYSIS LEADS TO A
FORMULA FOR THE THERMAL CONDUCTANCE OF CONTACTS IN A VACUUM AT SMALL
COMPRESSIVE LOADS. THE PRONOUNCED EFFECT OF SURFACE DEFECTS
(MACROGEOMETRY) ON THE HEAT RESISTANCE OF CONTACTS IS EMPHASIZED.

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NUCLEAR SCI. ABST./-70

MWR0000

1682 (CERN-Trans-69-13) BIOLOGICAL SHIELDING AND
TECHNIQUE OF RAPID EJECTION AT 70 GeV. Britvich, G. I.;
Golovachik, V. T.; Krupnyi, G. I.; Lebedev, M. N.; Mal'kov, V. V.;
Bushuev, N. I. Gosudarstvennyi komitet po ispol'zovaniyu
Atomnoi Energii SSSR, Serpukhov. Institut Fiziki Vysokikh En-
ergii). Translated by A. Golovanoff (CERN, Geneva, Switzer-
land), from report IFVE-ORZ-69-5. 44p. (In French). Dep.

The biological shielding for a proton fast ejection system was
calculated for an ejected proton beam with energy of 70 and 85
GeV and intensity of 10^{12} protons/cycle for a repetition rate of
8 cycles/min and proton efficiency of 100%. The shielding against
the nuclear activity, the μ mesons, and residual activity of the
target station were calculated. The arrangement of the biological
shielding of the target station was discussed. (J.S.E.)

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USSR

UDC 547.341

FRIDLAND, S. V., CHIRKUNOVA, S. K., and MALKOV, Yu. K., Kazan' Chemical-Technological Institute Imeni S. M. Kirov

"Reaction of Phosphorus Pentachloride With 1,3-Dioxolanes. VI."

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 2, Feb 73, pp 279-280

Abstract: It was shown that upon heating the crystalline complex obtained from the reaction of phosphorus pentachloride with 2-methyl-1,3-dioxolane yields the dichloride of α -chloro- β -(β -chloroethoxy)vinylphosphonic acid. A formula was proposed for above crystalline complex: $[\text{ClC}_2\text{H}_4\text{OC}(\text{Cl})\text{HCH}_3 \cdots \text{PCl}_5 \cdot \text{POCl}_3]$. Decomposition of this complex with H_2S yields the β -(β -chloroethoxy)vinylthiophosphonic acid dichloride.

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1/2 025 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--GENERALIZED CHARACTERISTICS OF AN ELECTRIC ARC DC HYDROGEN HEATER
-U-
AUTHOR--(05)--ZHUKOV, M.F., SUKPININ, YU.I., MALKOV, YU.P., VOROBYEVA, N.I.,
MUKHC, G.S.
COUNTRY OF INFO--USSR
SOURCE--AKADEMIIA NAUK SSSR, SIBIRSKOE OTDELENIE, IZVESTIIA, SERIIA
TEKHICHESKIKH NAUK, FEB. 1970, P. 30-34
DATE PUBLISHED--70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--ELECTRIC ARC, DIRECT CURRENT, AIR HEATER, HYDROGEN, COPPER,
TUNGSTEN, CATHODE, ANODE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/1272

STEP NO--UR/0288/70/000/000/0030/0034

CIRC ACCESSION NO--AP0124923

UNCLASSIFIED

EXPERIMENTALLY THAT A LONG
EROSION STABILITY DURING OPERATION IN A HYDROGEN MEDIUM AND A LONG
SERVICE LIFE. IT IS CONCLUDED THAT THE USE OF A COPPER TUNGSTEN CATHODE
AND ANODE CAN ENSURE LONG LASTING SINGLE CHAMBER HYDROGEN PLASMATRONS
WITH GAS VORTEX STABILIZATION OF HIGH POWER ELECTRIC ARCS.
FACILITY: AKADEMIIA NAUK SSSR, INSTITUT TEORETICHESKOI I PRIKLADNOI
MEKHANIKI, NOVOSIBIRSK, USSR.

UNCLASSIFIED

Materials

USSR

UDC 539.4:536.453

MEKHED, G. N., MINTS, R. S., MALKOV, Yu. S., TOROPOV, V. M., AKIF'YEVA, O. I.

"Investigation of the Mechanical Properties of Type NIAN Alloys in the Cast and Deformed State"

V sb. Protsessy formoizmeneniya met. i splavov (Processes of Deformation of Metals and Alloys--collection of works), Moscow, "Nauka", 1971, pp 122-125 (from RZh-Mekhanika, No 10, Oct 71, Abstract No 10V983)

Translation: The mechanical properties (breaking point, relative lateral contraction, relative longitudinal extension) of type NIAN alloys (Ni, Nb, Al) were determined in the temperature range of 20-1100°C by a standard procedure. The resultant data show that the strength decreases monotonically with an increase in testing temperature. The ductility properties of the alloys change little with an increase in temperature up to a certain point, after which they increase noticeably. Adding molybdenum and zirconium to NIAN-2 alloy increases the strength properties of the alloy appreciably throughout the entire temperature range. It was found that deformation increases the strength and ductility of NIAN type alloys. The

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UNCLASSIFIED

PROCESSING DATE--20NOV70

APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R002201910020-4

212 025
CIRC ACCESSION NO--
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SURVEY OF THE RESULTS OF
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SURVEY OF THE RESULTS OF
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SURVEY OF THE RESULTS OF

USSR

MEKHED, G. N. et al., Protsessy formoizmeneniya met. i splavov, Moscow, "Nauka", 1971, pp 122-125

breaking point of NIAN-2 alloy at room temperature in the deformed state is 2.5 times the breaking point of the alloy in the cast state. The increase in strength of type NIAN alloys after deformation may be attributed to cold hardening and deformation aging. Authors' abstract.

2/2

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USSR

UDC: 621.315.592

GEORGITSE, Ye. I., IVANOV-OMSKIY, V. I., KOLOMIYETS, B. T.,
MAL'KOVA, A. A., and SMEKALOVA, K. P., A. F. Ioffe Physico-
Technical Institute, Leningrad

"Interaction of Hot Electrons and Phonons in $\text{Cd}_{1-x}\text{Hg}_x\text{Te}$ "

Leningrad, Fizika i tekhnika poluprovodnikov, No 7, 1972, pp
1283-1287

Abstract: Experiments are described for investigating the photoconductivity and photomagnetic effect in several $\text{Cd}_{1-x}\text{Hg}_x\text{Te}$ alloys for the purpose of studying the peculiarities of heating electrons by light as well as the interactions of phonons and photoelectrons. The specimens, in which $0.15 \leq x \leq 0.24$, were n-type and were investigated at temperatures of 10 and 80° K in magnetic fields of up to 18 kOe. To avoid heating of the electron gas by the stationary field, the photoconductivity was measured in electric fields of no more than 0.1 V/cm intensity; all measurements were made under conditions of weak light signals $\Delta n \leq n_0$, where n_0 is the concentration of balanced electrons. Spectra for the photoconductivity and the photomagnetic effect are plotted and a table of parameters for various combinations of the $\text{Cd}_{1-x}\text{Hg}_x\text{Te}$ formula is presented.

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USSR

GEORGITSE, Ye. I., et al, Fizika i tekhnika poluprovodnikov, No 7, 1972, pp 1283-1287

The method by which the measurements were conducted is explained in an earlier article (Ye. I. Georgitse, et al, FTP, 5, 1971, p 1765). The assistance of I. P. Polushchuk, graduate of Tbilisi University, is acknowledged.

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Photoelectric Effect

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USSR

UDC 621.315.592

GEORGITSE, YE. I., IVANOV-OMSKIY, V. I., KOLOMIYETS, B. T., MAL'KOVA, A. A.,
SMEKALOVA, K. P.

"Fluctuations of the Photoconductivity in a Magnetic Field and the Photomagnetic
Effect of $\text{Cd}_{0.20}\text{Hg}_{0.80}\text{Te}$ Alloy"

Leningrad, *Fizika i Tekhnika Poluprovodnikov*, Vol 6, No 3, 1972, pp 455-457

Abstract: A study was made of photoconductivity in a transverse magnetic field and the photomagnetic effect of $\text{Cd}_{0.20}\text{Hg}_{0.80}\text{Te}$ alloy at 10°K . The oscillatory nature of the spectra with a period depending on the magnetic field intensity was detected. The fluctuations of the photoelectric phenomenon are caused by quantum oscillations of optical absorption. The g -factor and effective mass of the electrons were estimated. Graphs are presented showing the photoconductivity spectra of the alloy for different magnetic field intensities. The oscillation period with respect to energy in the photoconductivity and photomagnetic effect spectra increases with the magnetic field. Therefore, they do not pertain to the phonon oscillations. The presence of oscillation peaks in the field functions indicates that the oscillations are caused by quantization of the energy spectrum of the electrons in the magnetic field. The oscillation period $\Delta 1/H$ is not constant, and, consequently, the oscillations cannot be $1/2$

USSR

GEORGITSE, YE. I., et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 3, 1972, pp 455-457

considered Shubnikov-de Haas or Gurevich-Firsov. It is proposed that the fluctuations of the absorption coefficient in the magnetic field are responsible for the observed peculiarities. The correspondence of the minimum photoconductivities to the maximum photomagnetic effect indicates the relation of the oscillations of the photoelectric phenomena of the alloy to the quantum oscillations of the optical absorption coefficient. Correspondence of the estimates of the g-factor and the effective electron mass with published data confirms the correctness of the assumptions with respect to the nature of the observed fluctuations. However, considering the measurement taken in non-polarized light, the results obtained do not permit a more complete analysis of the energy spectrum of electrons in a magnetic field.

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1/2 046 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--PHONON PLASMA INTERACTION AND INTERBAND TRANSITIONS IN MERCURY
TELLURIDE -U-
AUTHOR--(05)-IVANOVOMSKIY, V.I., KOLOMIYETS, B.Y., MALKOVA, A.A., MARKOV,
YU.F., MEKHTIYEV, A.SH.
COUNTRY OF INFO--USSR
SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(2), 417-19
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--MERCURY COMPOUND, TELLURIDE, SINGLE CRYSTAL PROPERTY, ELECTRON
MOBILITY, IR REFLECTANCE, PHONON INTERACTION, PLASMA INTERACTION,
CRYOGENIC PROPERTY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1988/0091 STEP NO--UR/0449/70/004/002/0417/0419
CIRC ACCESSION NO--AP0105177
UNCLASSIFIED

2/2 046

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0105177

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE IR REFLECTANCE WAS MEASURED FOR WAVELENGTHS OF 50-90 MU FROM INTRINSIC HGTE AT 80DEGREESK USING AN OPTICALLY POLISHED SURFACE OF A SINGLE CRYSTAL WITH n EQUALS 1.6 TIMES 10^{15} CM PRIME3 AND AN ELECTRON MOBILITY OF 8 TIMES 10^{15} CM PRIME2-V-SEC AT 4.2DEGREESK. EXPRESSIONS ARE GIVEN FOR ACCOUNTING FOR THE PHONON PLASMA INTERACTION, AND A THEORETICAL CURVE WAS SET UP FOR THE REFLECTANCE AT 80DEGREESK. FACILITY: FIZ. TEKH. INST. IH. IOFFE, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 621.373:530.145.6

DYATLOV, M. K., MAL'KOVA, G. I., NOVIKOVA, V. A., STEPANOV, V. A.,
SUKHANOVA, G. A.

"Service Life of a Helium-Cadmium Laser"

Elektron. tekhnika. Nauch.-tekhn. sb. Gazorazryadn. pribory (Electronic
Technology. Scientific and Technical Collection. Gas-Discharge Devices),
1971, vyp. 1(21), pp 77-85 (from RZh-Radiotekhnika, No 7, Jul. 71,
Abstract No 7D134)

Translation: Processes are studied which affect the service life of a
helium-cadmium laser with emission on a wavelength of 4416 \AA . It is
shown that the principal cause for termination of the service life of
this laser is the sorption of helium as cadmium vapor condenses from
the discharge onto the cold sections of the discharge tube. Résumé.

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1/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--TETRAKIS,PENTAFLUOROPHENYL,TITANIUM -U-
AUTHOR--(04)-RAZUVAYEV, G.A., LATYAYEVA, V.N., KILYAKOVA, G.A., MALKOVA,
~~G.A.~~
COUNTRY OF INFO--USSR
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(3), 620-1
DATE PUBLISHED--70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--FLUORINATED ORGANIC COMPOUND, ORGANOTITANIUM COMPOUND, BENZENE
DERIVATIVE, THERMAL DECOMPOSITION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/1066 STEP NO--UR/0020/70/191/003/0620/0621
CIRC ACCESSION NO--AT0124723
UNCLASSIFIED

2/2 015 UNCLASSIFIED PROCESSING DATE--300CT70
 CIRC ACCESSION NO--ATO124723
 ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. C SUB6 F SUB5 LI TREATED IN BT
 SUB2 O AT MINUS 70DEGREES WITH TICL SUB4 AND HELD 2 DAYS GAVE ON EVAPN.
 20-30PERCENT ORANGE (C SUB6 F SUB5) SUB4 TI.2ET SUB2 O, M.
 117-19DEGREES, WHICH WAS VERY HYGROSCOPIC. TREATED WITH HCL IT GAVE C
 SUB6 F SUB5 H AND TICL SUB4. HGCL SUB2 GAVE (C SUB6 F SUB5) SUB2 HG AND
 TICL SUB4. HEATED DRY THE SUBSTANCE IS STABLE TO 100DEGREES WHILE AT
 120-30DEGREES IN THE MELT IT DECOMPS. EXPLOSIVELY; IN C SUB6 H SUB6 AT
 200-50DEGREES IT WAS TOTALLY DECOMPD. IN 40-50 HR TO C SUB12 H SUB6 F
 SUB4, M. 62DEGREES, C SUB6 F SUB5 H AND (C SUB6 F SUB5) SUB2, AND INORG.
 TI FLUORIDES. POSSIBLY THE 1ST PRODUCT IS C SUB6 F SUB4 HPH.
 FACILITY: NAUCH.-ISSLED. INST. KHIM., GOR^K, GOS. UNIV. IM.
 LOBACHEVSKOGO, GORKI, USSR.

UNCLASSIFIED

USSR

UDC 542.911.547.752

KOTLYAREVSKIY, I. L., MAL'KOVA, L. A., Institute of Chemical Kinetics and Combustion of the Siberian Department of the USSR Academy of Sciences

"Synthesis of Analogs of the Diethylamide of Lysergic Acid"

Moscow, Izvestiya Akademii Nauk SSSR - Seriya Khimicheskaya, No 11, 1972, pp 2613-2614

Abstract: A study was made to obtain new medicines and discover the relation of the structure of LSD-25 (the diethylamide of lysergic acids, I) to its physiological activity by synthesizing some analogs of I -- a series of N-methyl-N/ β -(β -indolyl)ethylglycine. Analysis of the paramagnetic resonance spectra was used to determine the structure of the analogs. The experimental procedure and results are presented for the synthesis of the morpholide of monobromacetic acid and the morpholide of N-methyl-N/ β -(β -indolyl)ethylglycine.

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USSR

UDC 621.385.632.01

ARISTARKHOVA, O.N., BORODENKO, V.G., MAL'KOVA, N.YA., PINCHUR, L.A.,
POBEDONOSTSEV, A.S.

"Optimization On Digital Computer Of Efficiency Of Multisection TWT"

Elektron.tekhnika. Nauch.-tekhn.ob.Elektron. SVCh (Electronics Technology.
Scientific-Technical Collection. Microwave Electronics), 1971, Issue 7, pp 111-
114 (from RZh--Elektronika i yeye primeneniye, No 11, Nov 1971, Abstract No
11A181)

Translation: The results are presented of an automatic optimization on a
digital computer of the efficiency of a traveling-wave tube with a gap [razryv],
three-phase discontinuities, and a phase discontinuity of the wave velocity.
With values of the amplification parameter $Q = 0.1$, microperforance $p/\lambda = 0.8$,
and loss parameter $d = 0.01$, the electron efficiency of the optimum version of
the TWT which is found amounts to 65 percent. With respect to the character-
istics of the interaction mechanism, the version of the TWT considered is close
to hybrid devices. Summary.

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- 106 -

Vacuum Tubes

USSR

UDC 621.385.624

BORODENKO, V. G., ZAKURDAYEV, A. D., MAL'KOVA, N. Ya., POBEDONOSTSEV, A. S.

"Designing Centimeter Band Amplifying Klystron With the Aid of an Electronic Computer"

Elektron. tekhnika. Nauch.-tekhn. sb. Elektron. SVCh (Electronics Technology. Scientific-Technical Collection. Microwave Electronics), 1971, Issue 8, pp 18-20 (from RZh--Elektronika i yeye primeneniye, No 12, Dec 1971, Abstract No 12A261)

Translation: The output characteristics are presented of a 5-cavity amplifying klystron, the spatial interaction of which was optimized on a computer. The efficiency of the experimental models is 10-12 percent higher than with known advertised types of a given class. 4 ref. Summary

USSR

UDC 621.385.632

POBEDONOSTSEV, A. S., ROVENSKIY, G. V., and MAL'KOVA, N. Ya.

"Theoretical Analysis of a TWT With Increased Phase Velocity of a Wave in the Output Section of the Delay System"

Elektron. tekhnika. Nauch.-tekhn. sb. Elektron. SVCh (Electronics Technology) Scientific-Technical Collection. Microwave Electronics], 1971, Issue 4, pp 148-150 (from RZh-Elektronika i yeye primeneniye, No 8, August 1971, Abstract No 8A184)

Translation: A theoretical study is made of a traveling-wave tube with an increased phase velocity of a wave in the output section under the condition of continuity of the power flux among the latter sections. It is shown that with operation according to such a scheme and with increased parameters, nonsynchronisms of the input section for electrons and the total efficiency are increased. Summary.

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USSR

UDC 621.385.632

POBEDONOSTSEV, A.S., YALIKOVA, N.YA., BORODENKO, V.G.

"To A Nonlinear Theory Of A Resonant TWT Oscillator"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, No 8, pp 3-10 (from RZh--Elektronika i yeye primeneniya, No 12, December 1970, Abstract No 12A178)

Translation: The peculiarities of the mechanism of interaction and the energy characteristics of traveling-wave tube oscillator are considered in the approximations of nonlinear one-dimensional theory. It is shown that with respect to efficiency this device considerably surpasses conventional and resonant backward-wave tubes, and is not inferior to the latter in other output parameters. 8 ref. Summary.

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USSR

UDC 621.385.632.01

POBEDONOSTSEV, A. S., ROVENSKIY, G. V., MAL'KOVA, N. YA.

"Investigation of TWT With Velocity Jump of Electrons And With Phase-Velocity Jump Of A Wave In The Output Section Of A Delay Line"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, Issue 11, pp 12-18
(from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2A183)

Translation: The results are presented of a computation of a traveling-wave tube with a velocity jump of electrons and a phase-velocity jump of the wave in the output section of a delay line. The characteristics are considered of the operating mechanism of such TWTs and their advantage in electron and overall efficiency in comparison with ordinary TWTs. The experimental characteristics are presented of a TWT with a phase-velocity jump. 3 ref. Summary.

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1/2 011

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--SEQUENTIAL REACTIONS DURING COMPLEXING IN THE AL PRIME2POSITIVE
METHYLTHYMOL BLUE SYSTEM -U-

AUTHOR--(02)--MALKOVA, T.V., OVCHINNIKOVA, V.D.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(1), 24-8

DATE PUBLISHED--70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--DYE, COMPLEX COMPOUND, ALUMINUM COMPLEX, CHEMICAL REACTION
RATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0965

STEP NO--UR/0153/70/013/001/0024/0028

CIRC ACCESSION NO--AP0124624

UNCLASSIFIED

AL(H SUB2 O) SUBM-X IND. THE SUCCEEDING RAPID REACTION IS ASSUMED TO BE: AL(H SUB2 O) SUBM-X IND PLUS IND EQUALS AL(H SUB2 O) SUBM-X-Y IND SUB2 PLUS YH SUB2 O. THE VELOCITY OF THE LATTER REACTION IS CALCD. AS 62.5 AND 34.6 L.-(MOLE SEC) AT PH 6 AND 5, AND THAT OF THE FORMER RATE CONTROLLING REACTION IS 2.8 AND 3.3 L.-(MOLE SEC) AT PH 6 AND 5. A STABLE COMPLEX IS BELIEVED TO FORM BY THE FOLLOWING REACTION: AL(H SUB2) SUBM-X-Y IND SUB2 PLUS AL(H SUB2 O) PRIME3POSITIVE SUBM-X EQUALS 2AL(H SUB2) SUBS INS. FACILITY: IVANOV. KHIM. TEKHNOL. INST., IVANGVO, USSR.

UNCLASSIFIED

"APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R002201910020-4

1/2 025

UNCLASSIFIED
TITLE--CLINICO MORPHOLOGICAL CHARACTERISTICS OF CEREBRAL VASCULAR
DISTURBANCES IN HEPATIC INSUFFICIENCY -U-
AUTHOR--(02)-MARTYNOV, YU.S., MALKOVA, YE.V.

PROCESSING DATE--30OCT70

COUNTRY OF INFO--USSR

SOURCE--KLINICHESKAYA MEDITSINA, 1970, VOL 48, NR 5, PP 61-67

DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--LIVER DISEASE, CEREBRUM, EDEMA, SYNDROME, HEADACHE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/1038

STEP NO--UR/0497/70/048/005/0061/0067

CIRC ACCESSION NO--AP0126676

UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--30OCT70

"APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R002201910020-4"

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE REACTION OF 2.2-4.4 TIMES

2/2 025

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0126676

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN YOUNG AND MIDDLE AGE PATIENTS SUFFERING FROM HEPATIC INSUFFICIENCY IN DETERIORATION OF THEIR CONDITION ONE OFTEN OBSERVES DIFFERENT VASOMOTOR DISTURBANCES. STROKE AND CRISIS COMMONLY DEVELOP IN A REDUCED OR NORMAL ARTERIAL PRESSURE. THE GENERAL PICTURE OF PATHOHISTOLOGICAL CHANGES MAY BE FORMULATED AS FOLLOWS: HEPATIC METABOLIC TOXIC DYCIRCULATORY ENCEPHALOPATHIA WITH DISORDER OF THE VASCULAR PERMEABILITY, DISTURBANCE OF CEREBROSPINAL FLUID CIRCULATION AND CEREBRAL EDEMA. AS THE RESULT OF THESE DISTURBANCES THERE OCCUR DIFFERENT CLINICAL VARIANTS OF VASCULAR DISORDERS, MIGRAINE, CRISIS, PARENCHYMATOUS HEMORRHAGES, ETC. IN THE DEVELOPMENT OF DISTURBANCES OF CEREBRAL CIRCULATION OF IMPORTANCE IS ALSO THE INITIAL BACKGROUND, VEGETATIVE DYSTONIA, INITIAL MANIFESTATIONS OF ATHEROSCLEROSIS, ETC. EARLY AND TIMELY PATHOGENETIC THERAPY OF HEPATIC INSUFFICIENCY IS THE PRINCIPAL MEANS OF PROPHYLAXIS OF CEREBRAL VASCULAR DISORDERS AND IS CONDUCTIVE TO THEIR Milder COURSE. FACILITY: KAFEDRA NERVNYKH BOLEZNNEY UNIVERSITETA DRUZHBY NARODOV IM. P. LUMUMBY.

UNCLASSIFIED

1/2 030 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--HEPATO PORTAL ENCEPHALOMYELOPATHY -U-
AUTHOR--(04)--BGOLEPOV, N.K., MARTYNOV, YU.S., MALKOVA, YE.V., TSIVILKO,
V.S.
COUNTRY OF INFO--USSR
SOURCE--ZHURNAL NEVROPATOLOGII I PSIKHIATRII IMENI S. S. KORSAKOVA, 1970,
VOL 70, NR 4, PP 496-506
DATE PUBLISHED--70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--LIVER, BILE, BRAIN, SPINAL CORD, BONE MARROW, CIRRHOSIS, DIET,
MEMORY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FAME--1988/1661 STEP NO--UR/0246/70/070/004/0496/0506
CIRC ACCESSION NO--AP0106407
UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0106407

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PRESENTATION IS CONCERNED WITH THE DESCRIPTION OF A NEW ORIGINAL FORM OF PATHOLOGY: HEPATO PORTAL ENCEPHALOMYELOPATHY, DEVELOPING IN PORTOCAVAL DYSIRCULATORY DISORDERS IN 54 PATIENT WITH DIFFERENT DISEASES OF THE LIVER AND THE BILIARY TRACT. THE AGE OF THE PATIENTS RANGED FROM 16-63. IN 9 CASES THERE WAS A PATHOHISTOLOGICAL STUDY OF THE BRAIN AND SPINAL NARROW, AND A HISTOCHEMICAL STUDY OF THE BRAIN TISSUE AND LIVER FOR CU. ENCEPHALOMYELOPATHY OCCURS AT THE DIFFERENT STAGES OF LIVER CIRRHOSIS FORMATION AND IS CHARACTERIZED BY POLYMORPHIC NEUROPSYCHIC DISORDERS IN THE FORM OF MEMORY AND ATTENTION WEAKENING, INTELLECTUAL LOWERING, DIFFERENT PYRAMIDAL AND EXTRAPYRAMIDAL DISTURBANCES, SYMPTOMS OF ORAL AUTOMATISMS, PELVIC DISORDERS. THE SPECIAL FEATURES OF PATHOMORPHOLOGICAL AND HISTOCHEMICAL BRAIN LESIONS IN HEPATO PORTAL ENCEPHALOMYELOPATHY, CONDITIONED BY CHRONIC LIVER AND BILIARY TRACT PATHOLOGY IN COMPARISON WITH WILSON KONOVALOV DISEASE IS THE ABSENCE OF CU IN THE BRAIN TISSUES AND LIVER, AS WELL AS THE ABSENCE OF THE I AND II TYPE OF ALZHEIMER'S GLIA. COMMON FOR BOTH DISEASES IS THE FEATURES OF THE PARENCHYMATOUS CELLULAR AND VASCULAR PATHOLOGY OF A TOXIC NATURE AND THE PHENOMENA OF FIGURATIVE NUCLEI OF THE ASTROCYTE GLIA. THE TREATMENT OF ENCEPHALOMYELOPATHY SHOULD FIRST OF ALL BE DIRECTED AGAINST THE MAIN DISEASE AND SHOULD INCLUDE MEDICATIVE PREPARATIONS, A DIET, AND IN SOME CASES SURGICAL TREATMENT.

UNCLASSIFIED